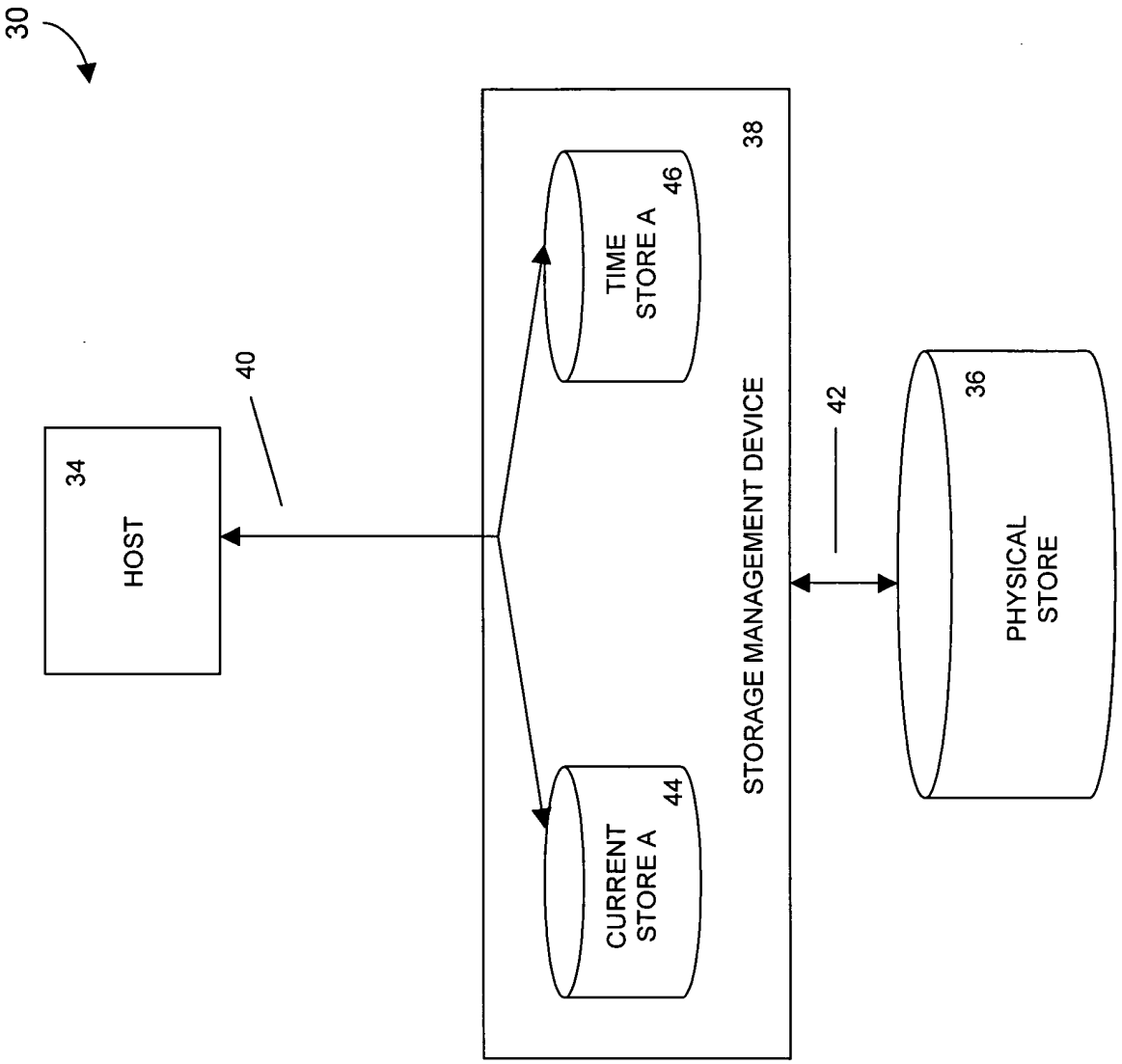

30
34
HOST
40
38
STORAGE MANAGEMENT DEVICE
TIME STORE A
46
CURRENT STORE A
44
42
36
PHYSICAL STORE

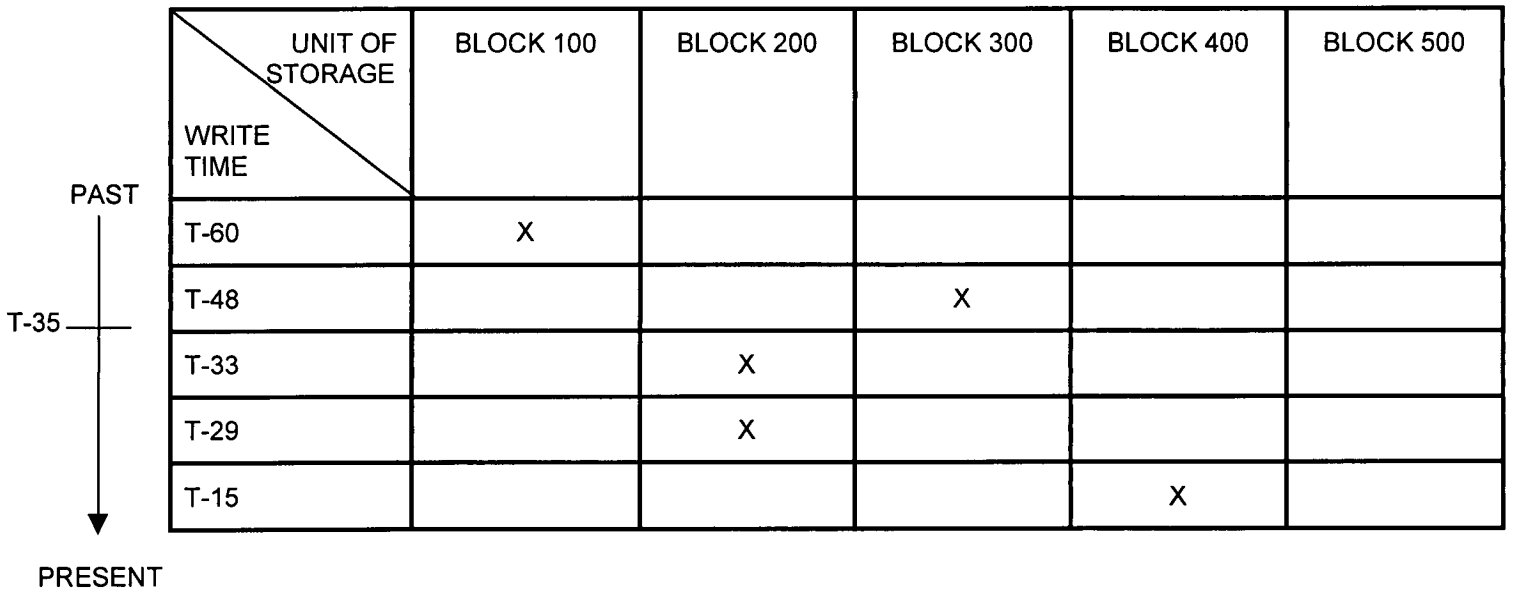
FIG. 1

88

Byte/Bit	7	6	5	4	3	2	1	0
0	Operation Code (C0h)							
1	Reserved			DPO	Reserved	EBP	ByteChk	RelAddr
2	Logical Block Address							
9								
10	Transfer Length							
13								
14	Reserved							
15								
16	RelativeChk							
17	Time							
24								
25	Reserved							
30								
31	Control							

FIG. 2

HISTORY OF DATA STORE A



X = DATA WRITE

FIG. 3

Title: Virtual Data Store Creation and Use
Inventor(s): Rowan et al.
Atty Docket No.: RVI-003
Atty/Agent: RVDonahoe
Express Mail Mailing Label No.: EL988703791US
Sheet 3 of 12

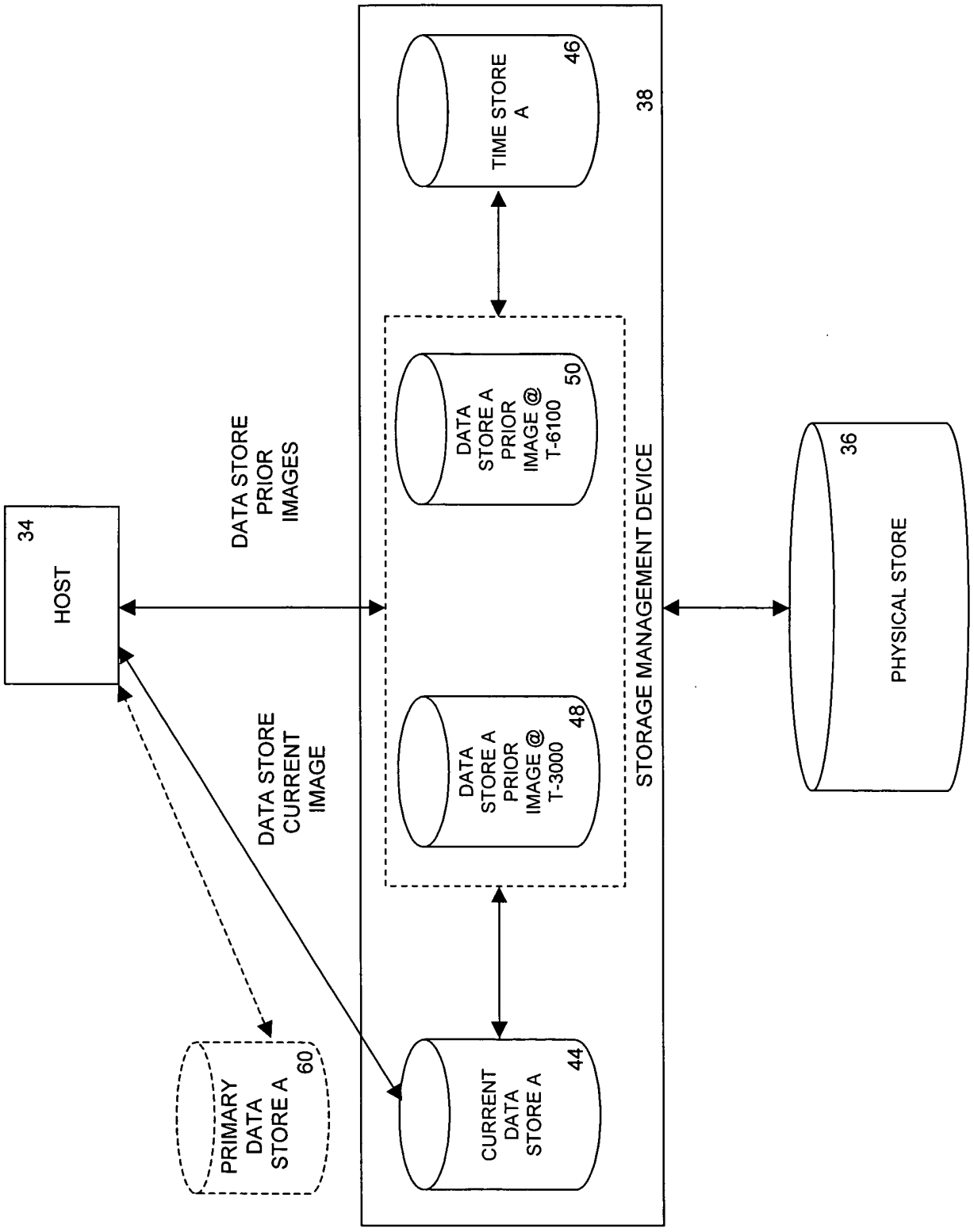

34
HOST
DATA STORE PRIOR IMAGES
DATA STORE CURRENT IMAGE
PRIMARY DATA STORE A
60
CURRENT DATA STORE A
44
DATA STORE A PRIOR IMAGE @ T-3000
48
DATA STORE A PRIOR IMAGE @ T-6100
50
TIME STORE A
46
38
STORAGE MANAGEMENT DEVICE
36
PHYSICAL STORE

FIG. 4

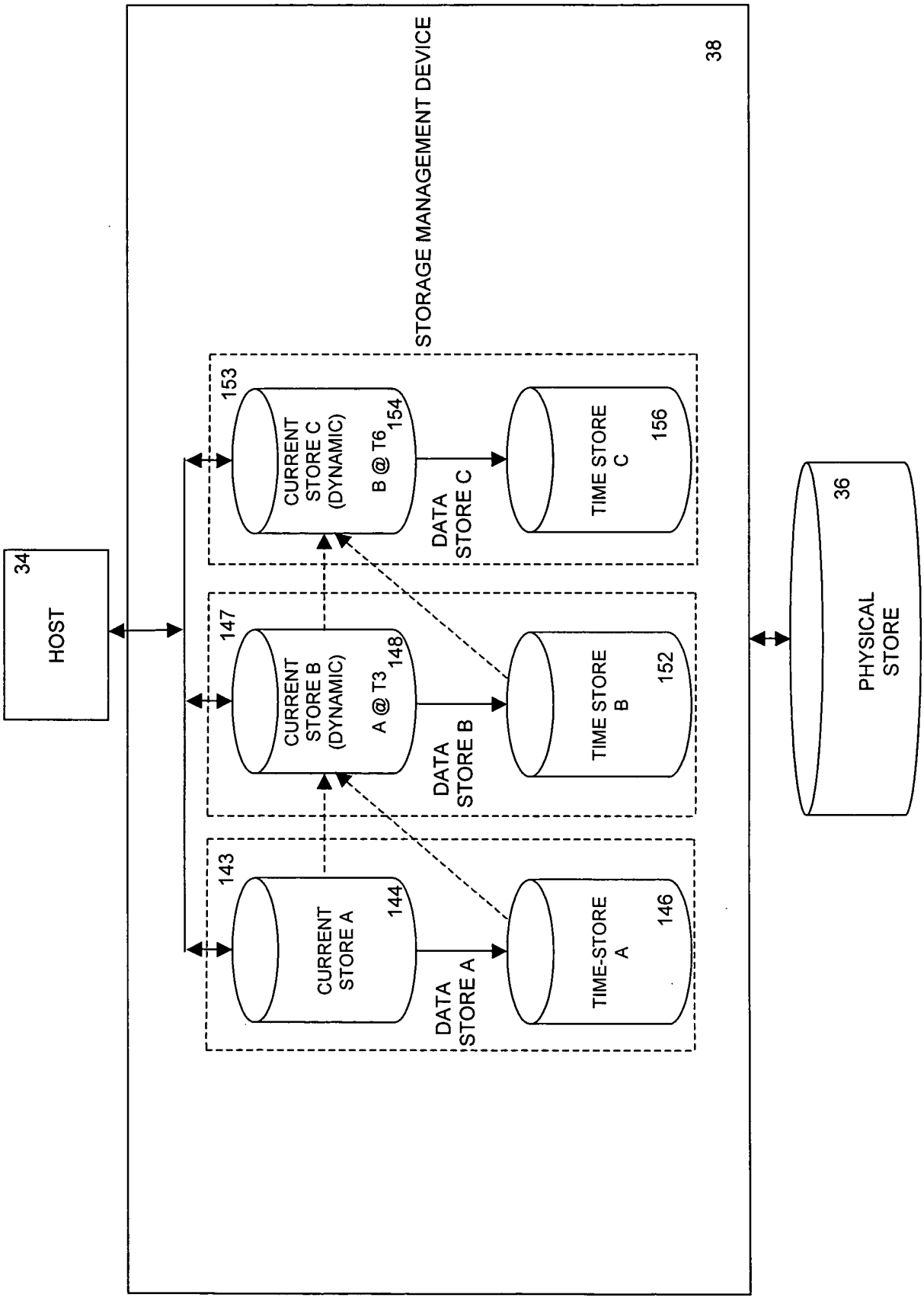

STORAGE MANAGEMENT DEVICE
38
HOST
34
PHYSICAL STORE
36
153
CURRENT STORE C (DYNAMIC)
B @ T6
154
DATA STORE C
TIME STORE C
156
147
CURRENT STORE B (DYNAMIC)
A @ T3
148
DATA STORE B
TIME STORE B
152
143
CURRENT STORE A
144
DATA STORE A
TIME-STORE A
146

FIG. 5

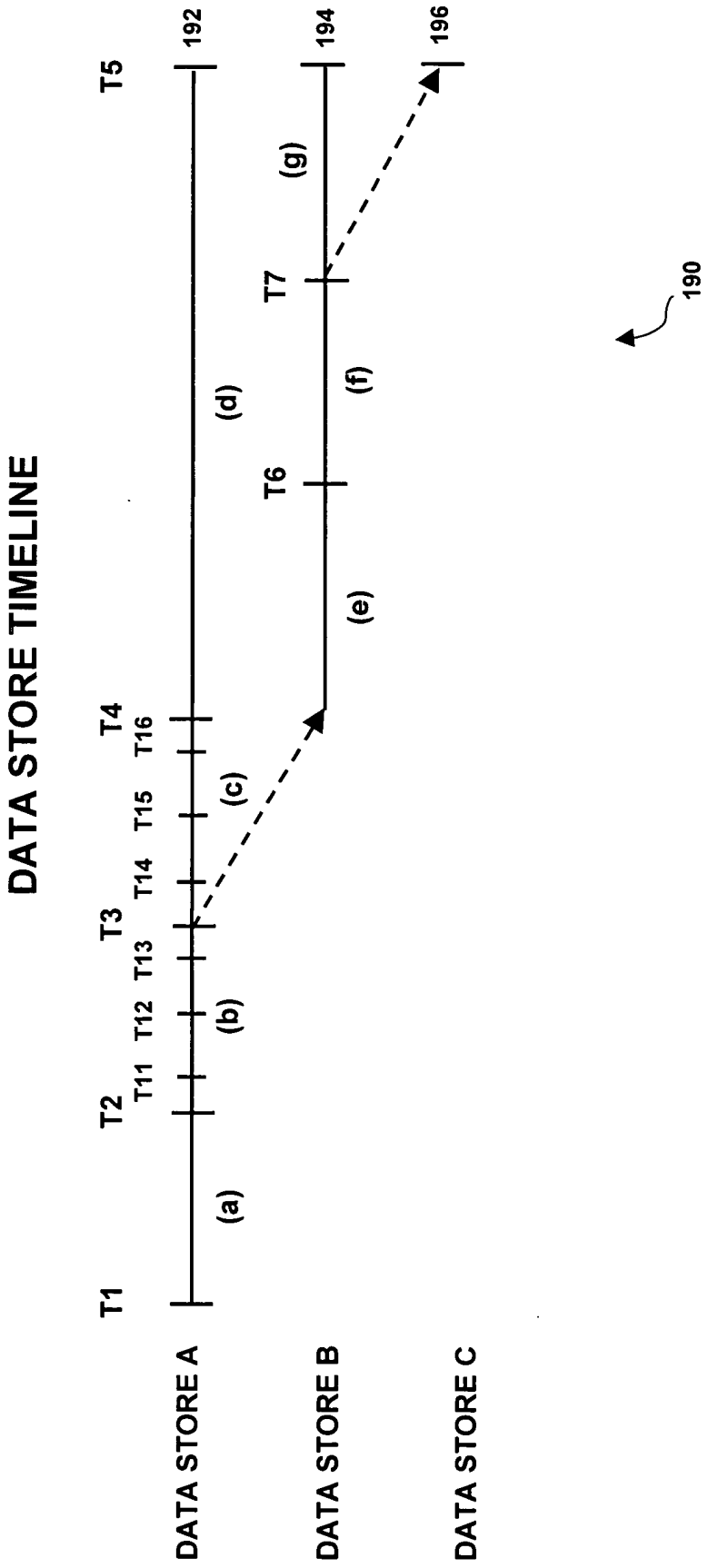

DATA STORE TIMELINE
DATA STORE A
DATA STORE B
DATA STORE C
T1
T2
T3
T4
T5
T6
T7
T11
T12
T13
T14
T15
T16
192
194
196
190
(a)
(b)
(c)
(d)
(e)
(f)
(g)

FIG. 6

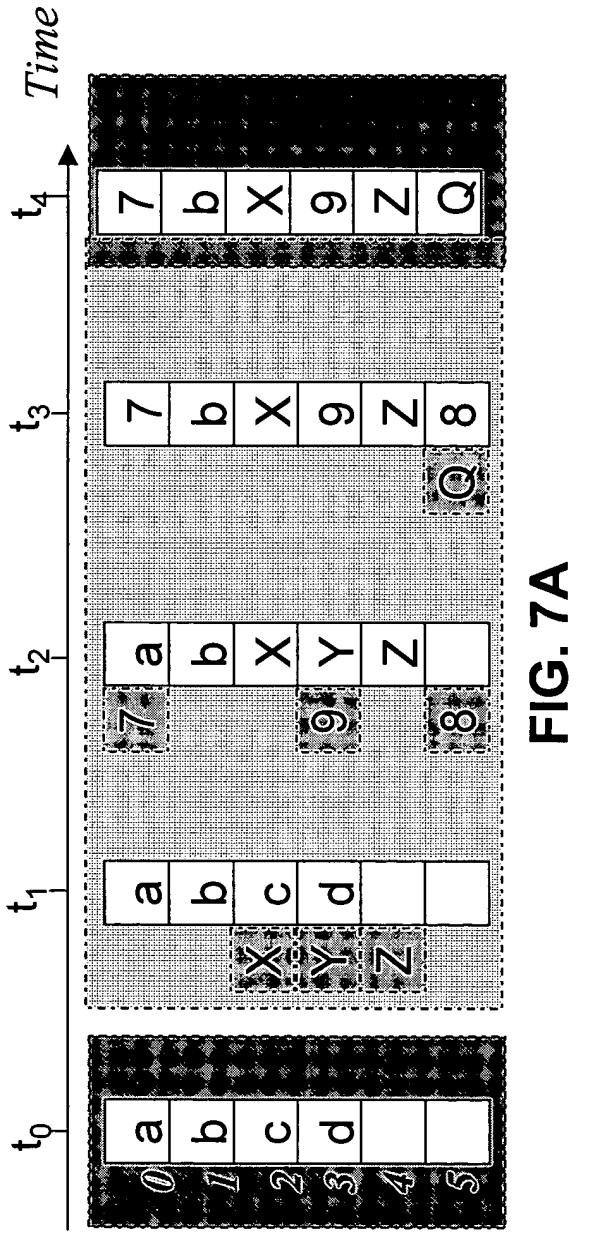

Time
t0
t1
t2
t3
t4
a b c d
X Y Z
a b X Y Z
7 9 8
7 b X 9 Z 8
Q
7 b X 9 Z Q
0 1 2 3 4 5

FIG. 7A

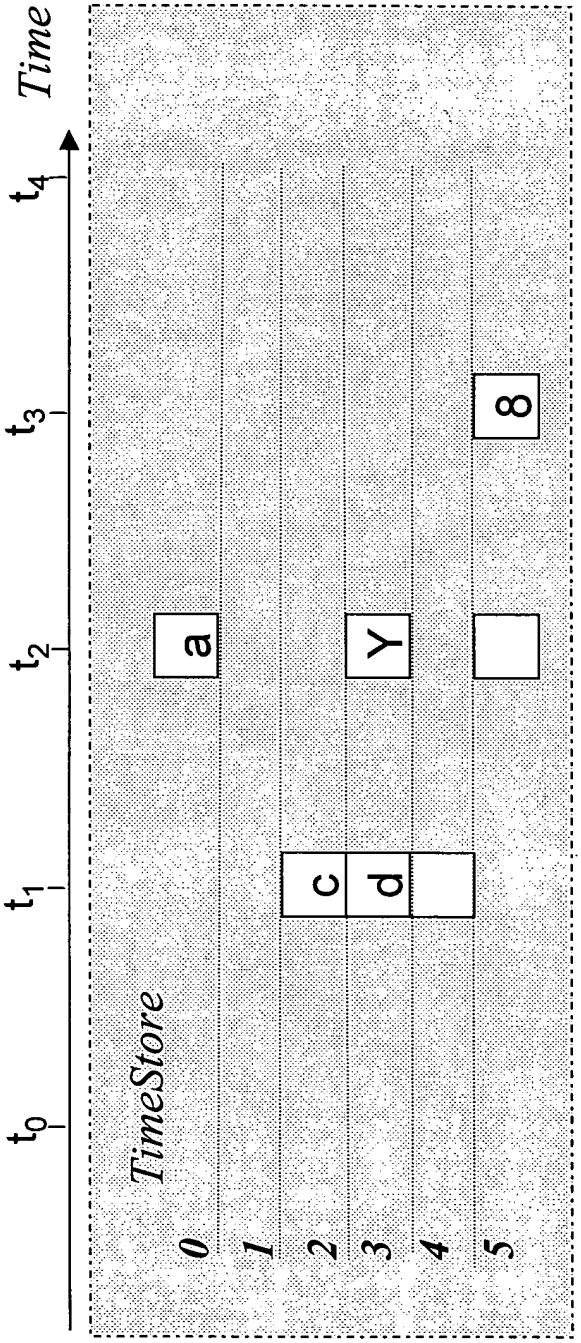

Time
t0
t1
t2
t3
t4
TimeStore
a
c d
Y
8
0 1 2 3 4 5

FIG. 7B

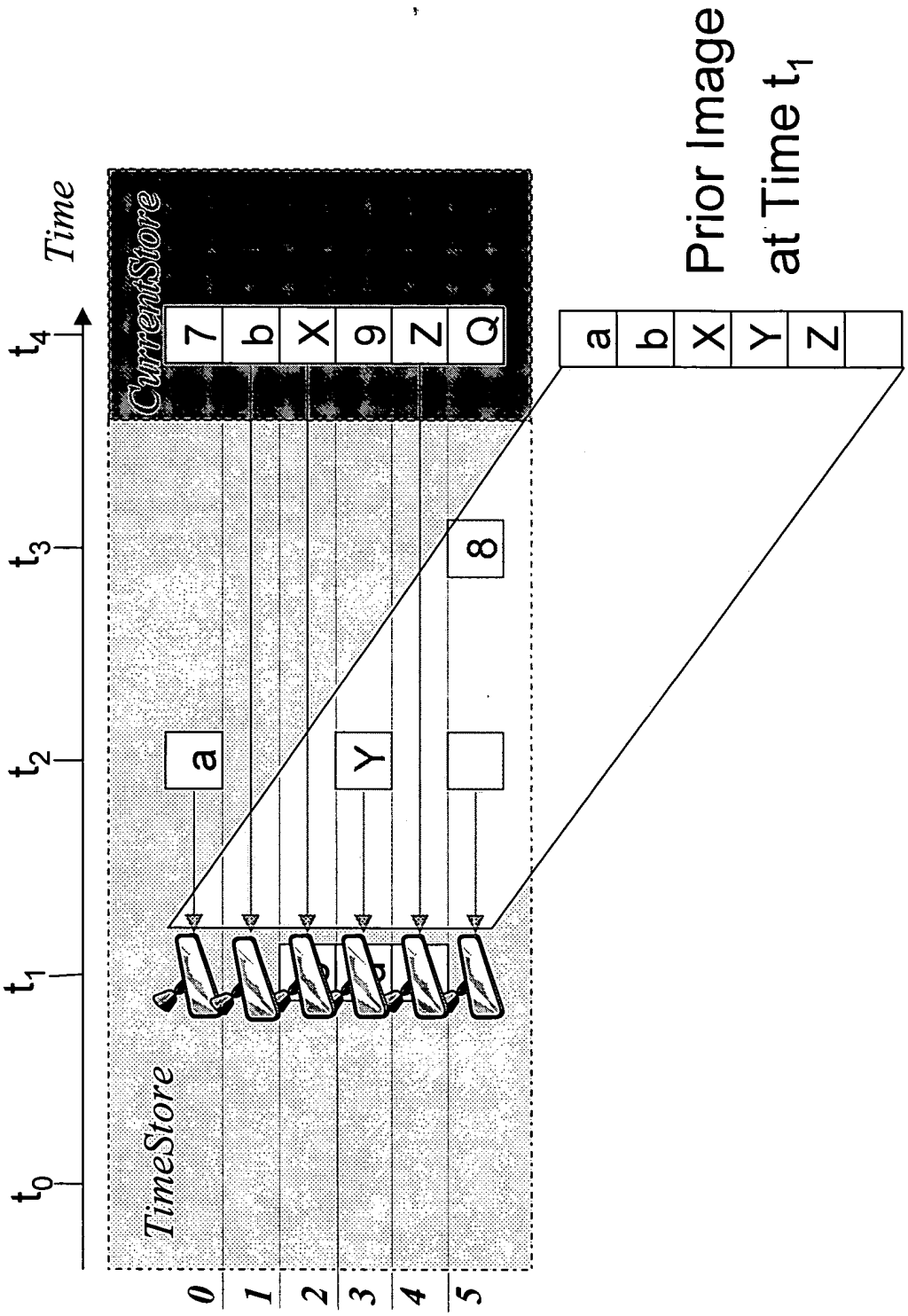

Time
t_4
t_3
t_2
t_1
t_0
CurrentStore
7
b
X
9
Z
Q
8
a
Y
TimeStore
0
1
2
3
4
5
Prior Image
at Time t_1
a
b
X
Y
Z

FIG. 8

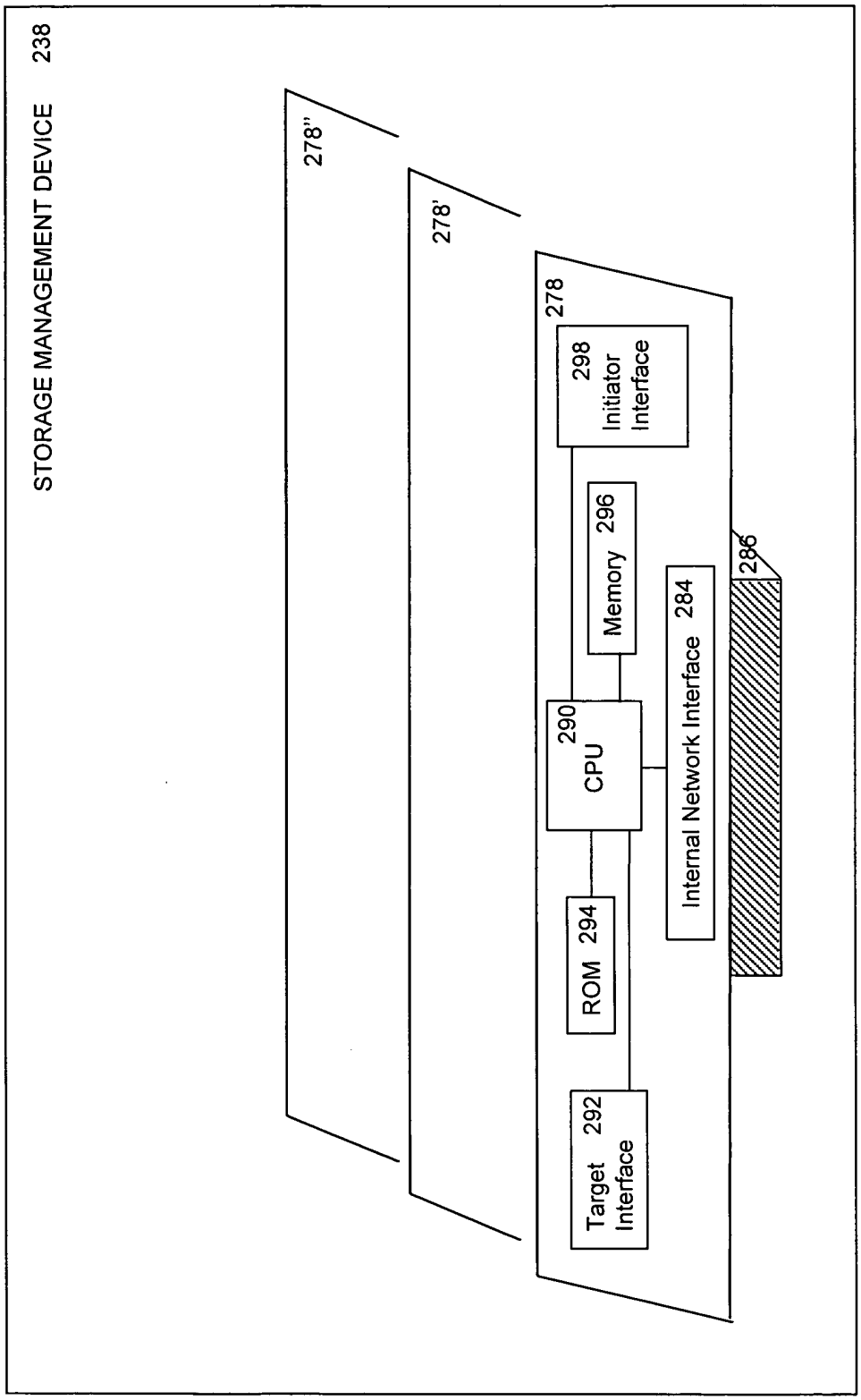

STORAGE MANAGEMENT DEVICE 238
278''
278'
278
298 Initiator Interface
Memory 296
286
290 CPU
Internal Network Interface 284
ROM 294
Target 292 Interface

FIG. 9

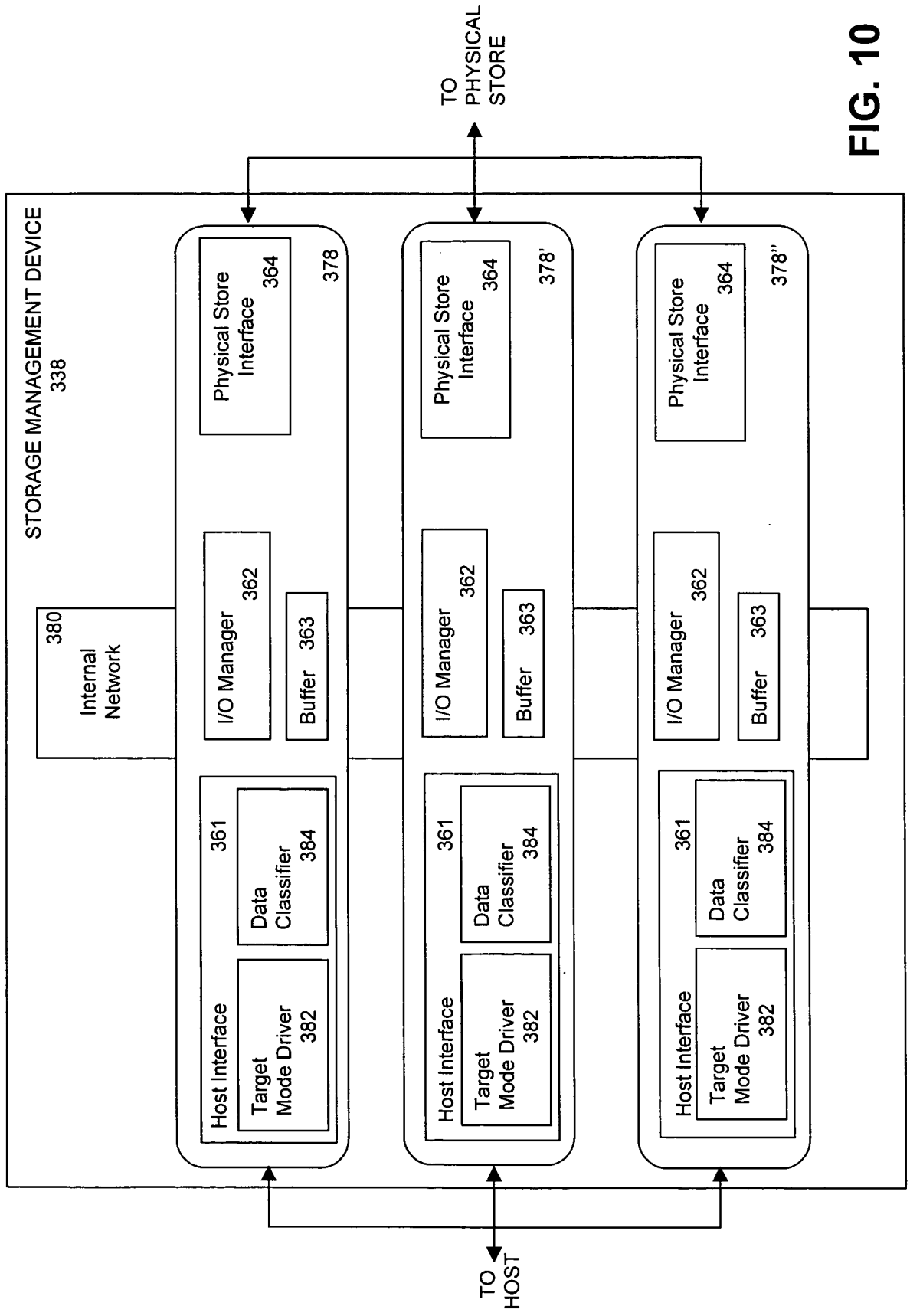

TO PHYSICAL STORE
STORAGE MANAGEMENT DEVICE
338
380
Internal Network
Physical Store Interface
364
I/O Manager
362
Buffer
363
Host Interface
361
Target Mode Driver
382
Data Classifier
384
378
378'
378''
TO HOST

FIG. 10

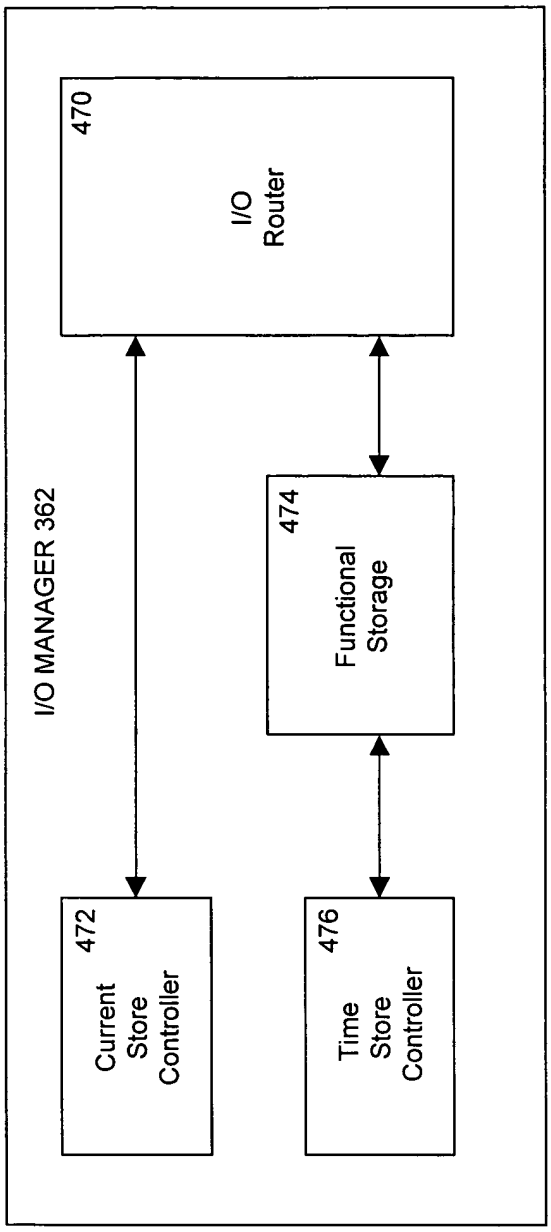

I/O MANAGER 362
470
I/O Router
474
Functional Storage
472
Current Store Controller
476
Time Store Controller

FIG. 11

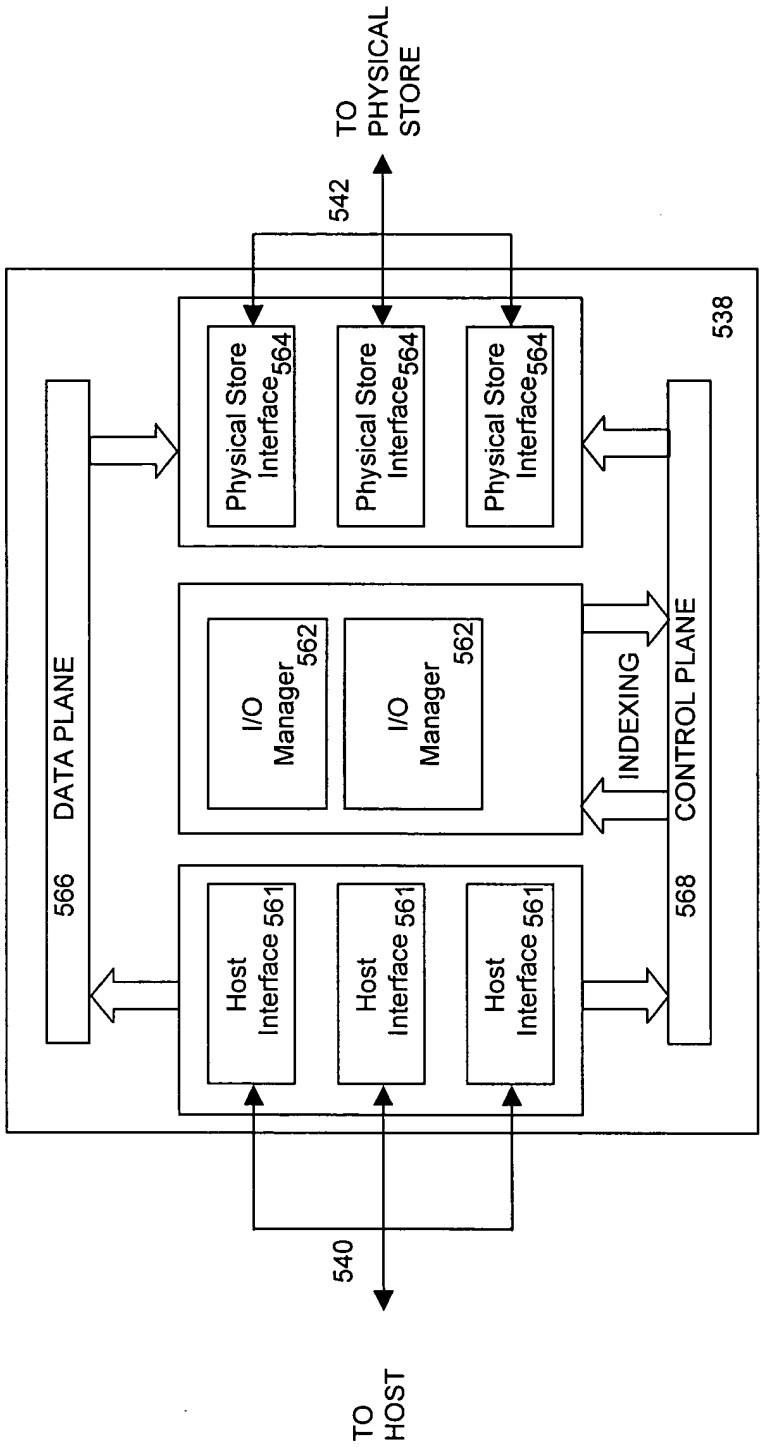

TO PHYSICAL STORE
542
538
Physical Store Interface 564
Physical Store Interface 564
Physical Store Interface 564
I/O Manager 562
I/O Manager 562
INDEXING
CONTROL PLANE
568
DATA PLANE
566
Host Interface 561
Host Interface 561
Host Interface 561
540
TO HOST

FIG. 12